

## **REMARKS**

Claim 1 is amended. Support for the amendment can be found, for example, on page 9, lines 24-26 and page 11, lines 15-17 of the specification. Claims 1-7 remain in the Application. Reconsideration of the pending claims is respectfully requested in view of the above amendments and the following remarks.

### **I. Drawings**

As stated above, Applicants submit herewith a proposed amendment to Figures 1 and 2 to comply with the Examiner's request. Applicants respectfully request approval of the amendment.

### **II. In the Specification**

Applicants have inserted the section headings "Field of the Invention" and "Description of Related Art" in the specification as requested by the Examiner. Approval of this amendment is respectfully requested.

### **III. Claims Rejected Under 35 U.S.C. § 102**

Claims 1-7 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,297,592 issued to Goren et al. ("Goren").

To anticipate a claim, the Examiner must show that a single reference teaches each of the elements of that claim. Amended Claim 1 recites:

"A method of manufacturing an electron-emitting source, comprising the steps of:  
    forming a film containing curled nanotube fibers on a substrate; and  
    irradiating the film formed on the substrate with a laser beam perpendicularly to the substrate, wherein the step of irradiating includes the step of disconnecting the nanotube fibers by the laser beam to increase the number of ends of the nanotube fibers" (emphasis added).

Applicants submit that Goren does not disclose the elements of "irradiating the film....with a laser beam perpendicularly to the substrate" and "disconnecting the

nanotube fibers by the laser beam to increase the number of ends of the nanotube fibers.”

According to Goren, in order to truncate the tall nanotubes and to provide the uniform height, the laser beam is irradiated from a parallel direction to the substrate on which the nanotubes were grown (see, e.g., FIG. 4A and col. 8, lines 3-4).

By contrast, according to the method of Claim 1, the nanotube fibers are cut by irradiating the laser beam from a direction perpendicular to the substrate. Further, by irradiating the laser beam perpendicularly to the substrate to cut the curled nanotube fibers, the number of distal ends of the nanotube fibers, which become the emission sites, can be made to increase moderately.

Goren does not disclose irradiating a laser beam perpendicular to the substrate. Goren also does not disclose increasing the number of the ends of the nanotube fibers using the laser beam. Thus, Goren does not teach each of the elements of amended Claim 1.

In regard to Claims 2-7, these claims depend from Claim 1 and incorporate the limitations thereof. Thus, at least for the reasons mentioned above in regard to Claim 1, Goren does not anticipate these claims. Accordingly, reconsideration and withdrawal of the § 102 rejection of Claims 1-7 are respectfully requested.

#### **IV. Claims Rejected Under 35 U.S.C. § 103(a)**

Claims 1-7 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Publication No. 2001/0028209 to Uemura et al. (“Uemera”) in view of U.S. Patent Publication No. 2004/0095050 to Liu et al (“Liu”).

To establish a *prima facie* case of obviousness, the relied upon references must teach or suggest every limitation of the claim such that the invention as a whole would have been obvious at the time the invention was made to one skilled in the art.

The Examiner recognizes that Uemera does not disclose smoothing the fibers by irradiation with a laser, but relies on Liu to cure the deficiency. Liu discloses irradiating a laser beam perpendicularly to the substrate. However, according to Liu, the laser beam is irradiated to control the height of the nanotube film, which is oriented

perpendicularly to the substrate. The height control reduces the electric field shielding by the adjacent nanotube. That is, according to Liu, in order to control the height of the nanotube films, the adjacent nanotubes are burned off and the density of the distal ends of the nanotubes is reduced.

By contrast, in the method of Claim 1, in order to increase the number of distal ends of the nanotube fibers, the nanotube fibers are cut by the laser beams perpendicularly irradiating to the substrate. Liu does not teach or suggest disconnecting the nanotube fibers with the laser beam in the perpendicular direction for the purpose of increasing the number of ends of the nanotube fibers. Therefore, Uemera and Liu, separately or in combination, do not teach or suggest each of the elements of amended Claim 1.

According to the present invention, there are advantages that cannot be expected from the cited references. For example, by the increase the number of ends of the nanotube fibers, the uniformity of the nanotube fibers improves and the emission current increases.

In regard to Claims 2-7, these claims depend from Claim 1 and incorporate the limitations thereof. Thus, at least for the reasons mentioned above in regard to Claim 1, these claims are non-obvious over Uemera in view of Liu. Accordingly, reconsideration and withdrawal of the § 103 rejection of Claims 1-7 are respectfully requested.



### CONCLUSION

In view of the foregoing, it is believed that all claims are now in condition for allowance and such action is earnestly solicited at the earliest possible date. If there are any additional fees due in connection with the filing of this response, please charge those fees to our Deposit Account No. 02-2666.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

Dated: January 4, 2007

Eric S. Hyman, Reg. No. 30,139

12400 Wilshire Blvd.  
Seventh Floor  
Los Angeles, California 90025  
(310) 207-3800

### CERTIFICATE OF MAILING:

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

1/4/2007

Amber D. Saunders

Date

### **AMENDMENT TO THE DRAWINGS**

Applicants submit a proposed amendment to Figures 1 and 2 (appended hereto) for approval by the Examiner in accordance with MPEP § 608.02(v). The proposed amendment to Figure 1 more clearly indicates that reference numeral 1 refers to the light source tube. The proposed amendment to Figure 2 corrects "Fig2" to "Fig. 2".